## REMARKS

The Office Action dated February 9, 2005 has been received and carefully noted. The above amendments to claim 36 and the following remarks are submitted as a full and complete response thereto. Dependent claim 38 is cancelled, without prejudice or disclaimer.

Claims 1-37 and 39-70 stand rejected and pending and under consideration.

The Applicants wish to thank the Examiner for indicating allowable subject matter in claims 18, 21, 31, 32, 38, 56, 59, and 69. Because independent claim 36 has been amended incorporating allowable subject matter, it is respectfully requested that independent claim 36 be allowed.

**REJECTION UNDER 35 U.S.C. § 102:**

*In the Office Action, at page 2, claims 1-17, 30, 36-37, 39-55, and 68 were rejected under 35 U.S.C. § 102 as being anticipated by U. S. Patent No. 6,831,893 to Nun et al. ("Nun"). The Office Action took the position that Nun describes all the recitations of independent claims 1, 30, 36, 39, and 68 and related dependent claims. This rejection is traversed and reconsideration is requested.*

Independent claim 1, upon which claims 2-29 are dependent, recites a method for balancing transmission unit traffic over network links. The method includes disposing transmission units into flows, grouping flows into first flow lists, each of the first flow lists corresponding to a selected network link, and determining a traffic metric

representative of a traffic load on the selected network link. The method further includes responsive to the traffic metric, regrouping flows into second flow lists corresponding to the selected network link, the regrouping balancing the transmission unit traffic among the network links, and transmitting the respective second flow list over the respective selected network link.

Independent claim 30, upon which claims 31-35 are dependent, recites a method for balancing transmission unit traffic over heterogeneous speed network links. The method includes disposing transmission units into flows, wherein each of the transmission units includes one of source information, destination information, and a combination thereof, and the disposing comprises characterizing each of the transmission units according to one of the source information, the destination information, and a combination thereof. Each of the transmission units comprises one of a packet, a frame, a cell, and a combination thereof. The method also includes grouping flows into first flow lists, each of the first decreasing-size-ordered linked flow lists corresponding to a selected network link; determining a traffic metric representative of a traffic load on the selected network link; responsive to the traffic metric, regrouping flows into second decreasing-size-ordered linked flow lists corresponding to the selected network link, the regrouping balancing the transmission unit traffic among the network links; and transmitting the respective second flow list over the respective selected network link using a predetermined link-layer transmission protocol, wherein the predetermined link-layer transmission protocol communicates the transmission unit traffic over the network

links in cooperation with a network-layer protocol. The network-layer protocol cooperates with a transport-layer protocol to communicate the transmission unit traffic across the network links, and wherein each of the network-layer protocol and the transport-layer protocol is one of a connectionless protocol and a connection-based protocol.

Independent claim 36, upon which claims 37-38 are dependent, recites a method for transmitting transmission units through a network. The method includes receiving a transmission unit from a transmission unit source; classifying the transmission unit according to a predetermined flow characteristic; and selecting a preselected network link over which the transmission unit is to be transmitted. The method further includes transmitting the transmission unit over the preselected network link; and e. monitoring the operation of a plurality of preselected network links, and reassigning the predetermined flow characteristic from a first preselected network link to a second preselected network link, if the first preselected network link operationally fails.

Independent claim 39, upon which claims 40-67 are dependent, recites a computer program product recorded on a computer readable medium for balancing transmission unit traffic over network links, including computer readable program code which disposes transmission units into flows, computer readable program code which groups flows into first flow lists, each of the first flow lists corresponding to a selected network link, computer readable program code which determines a traffic metric representative of a traffic load on the selected network link. A computer readable program code is

included which, responsive to the traffic metric, re-assigns flows into second flow lists corresponding to the selected network link, the re-assigning balancing the transmission unit traffic among the network links. A computer readable program code is included which transmits the respective second flow list over the respective selected network link.

Independent claim 68, upon which claims 69-70 are dependent, recites a network load balancer in a communication network having network links. The network load balancer includes a flow synthesizer that receives transmission units from a transmission unit source, and synthesizes flows characteristic of selected transmission units, and a link classifier, coupled with the flow synthesizer and the network links. The link classifier classifies the network links relative to a predetermined flow metric, and assigns selected flows to selected network links responsive to the predetermined flow metric, the selected transmission units corresponding to the selected flows being communicated with the communication network through the respective selected network links.

As will be discussed below, Nun fails to teach or suggest the elements of any of the presently pending claims.

Nun generally describes a classifier 260 determining a flow to which a data packet belongs based on the source and destination IP addresses contained in the header HDR of the data packet. See column 8, lines 11-15. In addition to determining the flow of a data packet based on the IP addresses, the classifier 260 of Nun may also determine the flow based on the source and destination port values contained in the header HDR of the data packet. See column 8, lines 15-34. Furthermore, the classifier 260 can additionally

identify a specific flow of the data packet based on the protocol value contained in the header HDR of the data packet. See column 8, lines 34-37. However, Nun fails to teach or suggest, at least, "grouping flows into first flow lists, each of the first flow lists corresponding to a selected network link," as recited in independent claim 1. Instead of grouping flows into first flow lists, Nun arranges data packets into a particular flow based on the header information of each data packet. The classifier 260 of Nun may identify a particular flow of the data packet based on the protocol value, but does not teach or suggest that once the flows are identified, these flows are further grouped "into first flow lists" as recited in independent claim 1.

In addition, according to Nun, the classifier 260 receives information from each of the packet processors PP1 to PPN indicating the relative load on each of the packet processors PP1 to PPN. See column 9, lines 28-32. Then, the classifier 260 assigns a new flow to the packet processor PP1, PP2, . . . , or PPN that has the smallest load.

However, Nun fails to teach or suggest, at least, "responsive to the traffic metric, regrouping flows into second flow lists corresponding to the selected network link, the regrouping balancing the transmission unit traffic among the network links," as recited in independent claim 1. Instead, Nun receives information pertaining to the processor PP1 to PPN load of data packets, not of grouped flows as in the present invention.

Nun does not regroup flows into second flow lists. Rather, the classifier 260 of Nun assigns a new flow to the packet processor PP1, PP2, . . . , or PPN that has the smallest data packet load.

According to Nun, if the classifier 260 determines that the particular data packet belongs to the particular flow and determines that one of the packet processors PP1 to PPN has previously been designated as the particular flow processor, the classifier 260 determines that the particular data packet should be output to the particular data processor. See column 9, lines 32-41. Nun provides loading the packet processors PP1 to PPN based on the flow of a data packet. Nun does not teach or suggest, at least, "regrouping flows into second flow lists," as recited in independent claim 1. Instead, based on the load of each packet processor PP1 to PPN or header information in each data packet, the classifier 260 assigns the particular packet processor PP1 to PPN to output the flow associated with the data packet.

Accordingly, in view of the foregoing, it is respectfully asserted that Nun does not anticipate all the recitations of independent claim 1 and related dependent claims.

Independent claim 30 recites in part, "grouping flows into first flow lists, ...responsive to the traffic metric, regrouping flows into second decreasing-size-ordered linked flow lists corresponding to the selected network link, the regrouping balancing the transmission unit traffic among the network links." Because independent claim 30 includes similar claim features as those recited in independent claim 1, although of different scope, and because the Office Action refers to similar portions of the cited references to reject independent claim 30, the arguments presented above supporting the patentability of independent claim 1 are incorporated herein to support the patentability of independent claim 30.

Because independent claim 36 has been amended incorporating allowable subject matter, it is respectfully requested that independent claim 36 be allowed.

Independent claim 39 recites in part, "b. computer readable program code which groups flows into first flow lists, each of the first flow lists corresponding to a selected network link; c. computer readable program code which determines a traffic metric representative of a traffic load on the selected network link; d. computer readable program code which, responsive to the traffic metric, re-assigns flows into second flow lists corresponding to the selected network link, the re-assigning balancing the transmission unit traffic among the network links." Because independent claim 39 includes similar claim features as those recited in independent claim 1, although of different scope, and because the Office Action refers to similar portions of the cited references to reject independent claim 39, the arguments presented above supporting the patentability of independent claim 1 are incorporated herein to support the patentability of independent claim 39.

Independent claim 68 recites in part, "a flow synthesizer that receives transmission units from a transmission unit source, and synthesizes flows characteristic of selected transmission units." In contrast, Nun generally describes a header processor 250 inputting data packet headers HDR from the data path units 230 and 240 and classifying the data packets by determining which rule or rules of a predetermined set of rules correspond to each of the headers HDR. See column 7, lines 9-12. Thus, instead of

synthesizing "flows characteristic," as recited in independent claim 68, Nun limits its description to classifying the data packets.

In addition, Nun generally describes that the classifier 260 inputs the headers HDR of the data packets and evaluates the headers HDR to determine a specific flow corresponding to each of the data packets. However, Nun fails to teach or suggest, at least, "a link classifier, coupled with the flow synthesizer and the network links, that classifies the network links relative to a predetermined flow metric, and assigns selected flows to selected network links responsive to the predetermined flow metric," as recited in independent claim 68. Nun is silent as to classifying the network links relative to a predetermine flow metric. Nun limits its description to making a determination of the flow for a particular data packet.

Accordingly, in view of the foregoing, it is respectfully asserted that Nun does not anticipate all the recitations of independent claim 68 and related dependent claims.

**CONCLUSION:**

In view of the above, Applicant respectfully submits that the claimed invention recites subject matter which is neither disclosed nor suggested in the cited prior art. Applicant further submits that the subject matter is more than sufficient to render the claimed invention unobvious to a person of skill in the art. Applicant therefore respectfully requests that each of claims 1-17, 30, 36-37, 39-55, and 68 be found

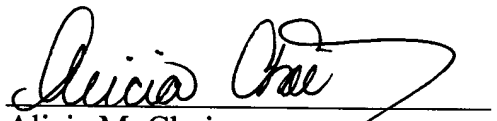
allowable and, along with allowed claims 18, 21, 31, 32, 38, 56, 59, and 69, this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the Applicant respectfully petitions for an appropriate extension of time.

Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Alicia M. Choi
Registration No. 46,621

**Customer No. 32294**
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

AMC:dll